



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

| APPLICATION NO.  | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO.     | CONFIRMATION NO.       |
|--|-------------|----------------------|-------------------------|------------------------|
| 10/720,084   | 11/25/2003  | Nobuaki Watanabe     | 2003_1657A              | 4863                   |
| 513 7590 12/11/2007<br>WENDEROTH, LIND & PONACK, L.L.P.<br>2033 K STREET N. W.<br>SUITE 800<br>WASHINGTON, DC 20006-1021 |             |                      | EXAMINER<br>LE, TUAN H  |                        |
|  |             |                      | ART UNIT<br>2622        | PAPER NUMBER           |
|  |             |                      | MAIL DATE<br>12/11/2007 | DELIVERY MODE<br>PAPER |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

**Application No.**

10/720,084

**Applicant(s)**

WATANABE, NOBUAKI

**Examiner**

Tuan H. Le

**Art Unit**

2622

– The MAILING DATE of this communication appears on the cover sheet with the correspondence address –

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 August 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Response to Arguments*

Applicant's arguments with respect to claims 1-13 have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over prior art admitted by applicant (PAAA, U.S. Pub. 2004/0105028) in view of Kato (U.S. Pub 2002/0167603 to Kato et al).**

Regarding **claim 1**, PAAA discloses

a mechanical blade openably and closably disposed in front of an image pickup element, the mechanical blade being operable to block a part or all of light passing through an exposure aperture or to reduce light passing therethrough, (PAAA, paragraph [0004], wherein a mechanical shutter blade disposed in front of a ccd opens and closes an optical path);

an electromagnetic actuator (motor) being operable to enable the blade to perform an opening motion according to opening energization and to enable the blade

to perform a closing motion according to closing energization, (PAAA, paragraphs [0004] and [0005], wherein the mechanical blade is kept opened or closed); and

a control means (electric current and magnetic force) for drive-controlling the electromagnetic actuator (PAAA, Fig. 1 paragraphs [0004] and [0005], wherein the shutter blade is kept opened by a magnetic urging force of an electromagnetic actuator).

However, PAAA does not disclose

applying opening energization to the electromagnetic actuator so as to allow the blade to perform an opening motion before performing a closing motion in a photographable standby state in which the blade is to be kept in an opened state.

On the other hand, Kato discloses

applying opening energization to the electromagnetic actuator so as to allow the blade to perform an opening motion before performing a closing motion in a photographable standby state in which the blade is to be kept in an opened state (Kato, paragraph [0250], wherein the shutter enters open state at the power supply on even when the eyepiece shutter becomes in close state by the impact applied to the main body of the camera.).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the opening and closing of the shutter as described by Kato into the blade driving device as described by PAAA so as to open the shutter blade before closing it because such incorporation prevents a valuable

shutter chance from being missed, possible to start photographing operation immediately (Kato, paragraph [0250]).

As for **claim 2**, PAAA and Kato disclose all of the limitations of claim 1. In addition, Kato discloses the control means applies opening energization to the electromagnetic actuator and then applies closing energization thereto when a releasing operation is performed (Kato, paragraph [0252], wherein at the power supply ON, shutter is opened by an actuator and photographing operation, in which shutter is closed, is followed).

As for **claim 3**, PAAA and Kato disclose all of the limitations of claim 1. In addition, PAAA discloses that the blade is a shutter blade that opens and closes the aperature, (PAAA, paragraph [0004], wherein a mechanical shutter blade is employed).

**Claims 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over prior art admitted by applicant (PAAA, U.S. Pub. 2004/0105028) in view of Kato (U.S. Pub 2002/0167603 to Kato et al) and further in view of Yamaguchi (U.S. Pat. 5,764,292).**

As for **claim 4**, PAAA and Kato disclose all of the limitations of claim 1. However, PAAA and Kato does not disclose that the blade is a diaphragm blade that stops down the aperature to a predetermined aperature diameter.

On the other hand, Yamaguchi discloses that the blade is a diaphragm blade that stops down the aperature to a predetermined aperature diameter, (Yamaguchi, Figs. 4a-4c, wherein diameter 6 is shown).

Therefore, it would have been obvious to an ordinary skill in the art at the time the invention was made to incorporate the blade as described by Yamaguchi into the blade driving device as described by PAAA and Kato so as to stop the blade at an aperture diameter because such incorporation allows capturing high-brightness objects by reducing the amount of incident light and eliminates complicated mechanism required for optimizing diaphragm mechanism, resulting in a low-cost and small image pickup apparatus, (Yamaguchi, column 2 lines 42-60 and column 5 lines 64 bridging column 6 lines 1-2).

As for **claim 5**, PAAA, Kato, and Yamaguchi disclose all of the limitations of claim 1. In addition, Yamaguchi discloses that the blade is an ND filter blade that reduces an amount of light passing through the aperture to a predetermined level (Yamaguchi, column 6 lines 3-11, wherein a light reducing means such as ND filter is inserted and retracted).

**Claims 6-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over prior art admitted by applicant (PAAA, U.S. Pub. 2004/0105028) in view of Yamaguchi (U.S. Pat. 5,764,292).**

Regarding **claim 6**, PAAA discloses  
a mechanical blade openably and closably disposed in front of an image pickup element, the mechanical blade being operable to block a part or all of light passing through an exposure aperture or to reduce light passing therethrough, (PAAA, paragraph [0004], wherein a mechanical shutter blade disposed in front of a ccd opens and closes an optical path);

an electromagnetic actuator (motor) being operable to enable the blade to perform an opening motion according to opening energization and to enable the blade to perform a closing motion according to closing energization, (PAAA, paragraphs [0004] and [0005], wherein the mechanical blade is kept opened or closed); and

a control means (electric current and magnetic force) for drive-controlling the electromagnetic actuator in a photographable standby state in which the blade is to be kept in an opened state (PAAA, Fig. 1 paragraphs [0004] and [0005], wherein the shutter blade is kept opened by a magnetic urging force of an electromagnetic actuator).

However, PAAA does not disclose

applying opening energization to the electromagnetic actuator so as to allow the blade to perform an opening motion before performing a closing motion when an amount of light incident on the image pickup element becomes equal to or less than a predetermined level.

On the other hand, Yamaguchi discloses

applying opening energization to the electromagnetic actuator so as to allow the blade to perform an opening motion before performing a closing motion when an amount of light incident on the image pickup element becomes equal to or less than a predetermined level (Yamaguchi, Fig. 5, column 5 lines 12-25 and lines 55-58, wherein the diaphragm is opened in step S2 and is closed in step S14 when the measured brightness is less than 14 EV).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the opening and closing of the diaphragm when an amount of light incident on the image pickup element becomes equal to or less than a predetermined level as described by Yamaguchi into the blade driving device as described by PAAA so as to open the shutter blade before closing it because such incorporation allows capturing high-brightness objects by reducing the amount of incident light and eliminates complicated mechanism required for optimizing diaphragm mechanism, resulting a low-cost and small image pickup apparatus, (Yamaguchi, column 2 lines 42-60 and column 5 lines 64 bridging column 6 lines 1-2 ).

As for **claim 7**, PAAA and Yamaguchi disclose all of the limitations of claim 6. In addition, PAAA discloses that the blade is a shutter blade that opens and closes the aperture, (PAAA, paragraph [0004], wherein a mechanical shutter blade is employed).

As for **claim 8**, PAAA and Yamaguchi disclose all of the limitations of claim 6. In addition, Yamaguchi discloses that the blade is a diaphragm blade that stops down the aperture to a predetermined aperture diameter, (Yamaguchi, Figs. 4a-4c, wherein diameter 6 is shown).

As for **claim 9**, PAAA and Yamaguchi disclose all of the limitations of claim 6. In addition, Yamaguchi discloses that the blade is an ND filter blade that reduces an amount of light passing through the aperture to a predetermined level (Yamaguchi, column 6 lines 3-11, wherein a light reducing means such as ND filter is inserted and retracted).



**Claims 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over prior art admitted by applicant (PAAA, U.S. Pub. 2004/0105028) in view of Kato (U.S. Pub 2002/0167603 to Kato et al) and further in view of Toguchi (U.S. Pat. 6,104,878 to Toguchi et al).**

Regarding **claim 10**, PAAA discloses

a mechanical blade openably and closably disposed in front of an image pickup element, the mechanical blade being operable to block a part or all of light passing through an exposure aperture or to reduce light passing therethrough, (PAAA, paragraph [0004], wherein a mechanical shutter blade disposed in front of a ccd opens and closes an optical path);

an electromagnetic actuator (motor) being operable to enable the blade to perform an opening motion according to opening energization and to enable the blade to perform a closing motion according to closing energization, (PAAA, paragraphs [0004] and [0005], wherein the mechanical blade is kept opened or closed); and

a control means (electric current and magnetic force) for drive-controlling the electromagnetic actuator (PAAA, Fig. 1 paragraphs [0004] and [0005], wherein the shutter blade is kept opened by a magnetic urging force of an electromagnetic actuator).

However, PAAA does not disclose

applying opening energization to the electromagnetic actuator so as to allow the blade to perform an opening motion before performing a closing motion in a photographable standby state in which the blade is to be kept in an opened state.

On the other hand, Kato discloses

applying opening energization to the electromagnetic actuator so as to allow the blade to perform an opening motion before performing a closing motion in a photographable standby state in which the blade is to be kept in an opened state (Kato, paragraph [0250], wherein the shutter enters open state at the power supply on even when the eyepiece shutter becomes in close state by the impact applied to the main body of the camera.).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the opening and closing of the shutter as described by Kato into the blade driving device as described by PAAA so as to open the shutter blade before closing it because such incorporation prevents a valuable shutter chance from being missed, possible to start photographing operation immediately (Kato, paragraph [0250]).

However, PAAA and Kato do not disclose a signal is output from a shock sensor used to detect an impulsive force.

On the other hand, Toguchi disclose a signal is output from a shock sensor used to detect an impulsive force (Toguchi, Figs. 5-7 and column 9 lines 3-9, wherein a camera-body impact with a predetermined value is detected by a shock sensor).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the output from a shock sensor as described by Toguchi into the blade driving device as described by PAAA and Kato so as to determined if a shock is applied to the camera body because such incorporation confirms the occurrence of shutter-closing for the camera controlling system, resulting in the display of date and time of the shock.

As for **claim 11**, PAAA and Kato disclose all of the limitations of claim 10. In addition, PAAA discloses that the blade is a shutter blade that opens and closes the aperature, (PAAA, paragraph [0004], wherein a mechanical shutter blade is employed).

**Claims 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over prior art admitted by applicant (PAAA, U.S. Pub. 2004/0105028) in view of Kato (U.S. Pub 2002/0167603 to Kato et al) and Toguchi (U.S. Pat. 6,104,878 to Toguchi et al) and further in view of Yamaguchi (U.S. Pat. 5,764,292).**

As for **claim 12**, PAAA, Kato, and Toguchi disclose all of the limitations of claim 10. However, PAAA, Kato, and Toguchi do not disclose that the blade is a diaphragm blade that stops down the aperature to a predetermined aperature diameter.

On the other hand, Yamaguchi discloses that the blade is a diaphragm blade that stops down the aperture to a predetermined aperture diameter, (Yamaguchi, Figs. 4a-4c, wherein diameter 6 is shown).

Therefore, it would have been obvious to an ordinary skill in the art at the time the invention was made to incorporate the blade as described by Yamaguchi into the blade driving device as described by PAAA, Kato, and Toguchi so as to stop the blade at an aperture diameter because such incorporation allows capturing high-brightness objects by reducing the amount of incident light and eliminates complicated mechanism required for optimizing diaphragm mechanism, resulting in a low-cost and small image pickup apparatus, (Yamaguchi, column 2 lines 42-60 and column 5 lines 64 bridging column 6 lines 1-2).

As for **claim 13**, PAAA, Kato, and Toguchi disclose all of the limitations of claim 10. In addition, Yamaguchi discloses that the blade is an ND filter blade that reduces an amount of light passing through the aperture to a predetermined level (Yamaguchi, column 6 lines 3-11, wherein a light reducing means such as ND filter is inserted and retracted).

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

**Yaginuma et al (U.S. Pat. 6,547,457)** discloses a camera shutter unit comprising a diaphragm blade, a shutter blade, and a driving-controlling mechanism.

**Koyama et al (U.S. Pat. 4,119,986)** discloses a control device of the shutter for a camera, which is equipped with shutter blades opening and closing an opening or the exposing operation.

**Sangregory et al (U.S. Pat. 5,173,728)** discloses a device for connecting a shutter blade to an electromagnetic camera shuttering system that utilizes an armature for producing a first magnetic field, and a stop to control the movement of a shutter blade.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan H. Le whose telephone number is (571) 270-1130. The examiner can normally be reached on M-Th 7:30-5:00 F 7:30-4:00.

Application/Control Number:  
10/720,084  
Art Unit: 2622

Page 13

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Ometz can be reached on (571) 272-7593. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Tuan Le/

A handwritten signature in black ink, appearing to read 'David Ometz', with a long horizontal stroke extending to the right.

DAVID OMETZ  
SUPERVISORY PATENT EXAMINER